

Amendments to the Specification

Please delete the heading on page 1, line 1 as follows:

SPECIFICATION

Please insert as a new heading and paragraph before "Technical Field" on page 1, line 7:

REFERENCE TO RELATED APPLICATIONS

This application is the National Stage of International Application No. PCT/JP2003/011222, filed September 3, 2003, the disclosure of which is incorporated herein by reference.

Please amend the paragraph starting on page 2, line 2 as follows:

As a typical example of existing PTC devices, a PTC device which comprises a laminar polymer PTC element produced from a polymer material having a conductive filler dispersed therein is known (see, e.g., Japanese Patent Kohyo Publication No. 10-501374 (1998, pages 7-15 Patent Literature 1)). The laminar polymer PTC element is produced by extrusion-molding a high density polyethylene which contains a conductive filler such as carbon black in a dispersed state. A PTC device is produced by disposing appropriate electrodes on both main surfaces of the polymer PTC element. Metal foil electrodes are used for such electrodes. The metal foil electrodes are bonded to the laminar polymer PTC element, for example, by thermocompression bonding.

Please delete the headings and text beginning on page 3, line 1, and replace it as follows:

~~Patent Literature 1~~

~~Japanese Patent Kohyo Publication No. 10-501374/1998 (pages 7 to 15)~~

Disclosure of Invention

~~Problems to be Solved by the Invention~~

BRIEF SUMMARY OF THE INVENTION

Please delete the heading on page 3, line 18, as follows:

~~Means for Solving the Problems~~

Please amend the paragraph beginning on page 4, line 31 as follows:

~~Another~~Other aspect of the present invention provides a PTC device for use in the above process. The PTC device comprises (A) (i) a laminar polymer PTC element and (ii) a metal foil electrode disposed on a main surface of the laminar polymer PTC element,

Please delete the heading on page 5, line 21 as follows:

~~Effect of the Invention~~

Please delete the headings and text beginning on page 6, line 15 as follows:

~~Description of Reference Numerals~~

~~10 = a PTC device, 12 = a PTC element, 14 = a metal foil electrode, 16 = a first layer, 18 = a second layer, 20 = a metal lead element, 22 = a laser beam, 24 = a connection, 26 = a lapped portion, 28 = a pulse seam connection, and 30 = a pulling direction.~~

~~Embodiments for Carrying out~~ Detailed Description of the Invention

Please delete the heading on page 14, line 11 as follows:

~~Examples~~

Please amend the heading on page 14, line 17 as follows:

Example 4

Please amend the paragraph beginning on page 14, line 32 as follows:

Strength of the resultant laser-welded portion was evaluated by testing and measuring lead tensile strength. Fig. 4 schematically illustrates a method for measuring the lead tensile

strength used for the evaluation of the strength of the laser-welded portion. As seen in Fig. 4, the metal lead elements (20) were welded to both main surfaces of the PTC device (10), and each of the metal lead elements (20) was connected to the PTC device (10) at two lines of welded portions, wherein one line was constituted by nine pulse seams. The welded portions were shown as pulse seam welded portions (28). In this regard, the PTC element (12) and the metal foil electrodes (14) are not shown in Fig. 4. The lead tensile strength was measured using a digital force gauge (DSP-20 (trade name) manufactured by AMDA), by pinching an end portion of the metal lead element (20) and pulling it upward at 90 degrees (i.e. the pulling direction (30)) and at a regular speed of 60 mm/min. Then, the maximum force applied was measured. Fifty samples obtained by the above laser welding were produced, and their lead tensile strength was measured. As a result, it was found that the lead tensile strength was 18.24 N (1.86 Kgf) on the average, and that the standard deviation was 3.33 N (0.34 Kgf). Since the lead tensile strength is generally required to be not less than 4.90 N (0.5 Kgf), it is confirmed that the welded strength resulting from the laser welding carried out in Example 1 was sufficiently large.

Please amend the heading on page 16, line 1 as follows:

~~CLAIMS~~ What is claimed is:

Please amend the Abstract shown on page 18 as follows:

ABSTRACT

The present invention provides a novel method for electrical connection between a polymer PTC device and a metal lead element to thereby prevent the problems of the connection by caulking or soldering. For this purpose, the present invention provides a process for producing a connection structure by laser welding, said connection structure having comprising (A) a PTC device (10) including (i) a laminar polymer PTC element (12) and (ii) a metal foil electrode (14) disposed on a main surface of the laminar polymer PTC element (12), and (B) a metal lead element (20) electrically connected to the metal foil electrode, ~~wherein the~~ The metal foil electrode (14) ~~has comprises~~ at least two metal layers, one of and a metal layer (16) which, the X-th layer, has the lowest laser beam absorption a% that is the lowest among the metal layers of the metal foil electrode (14) (the X-th layer having a laser beam absorption of a%). The X-th layer is present between a first metal layer (18), of the metal foil electrode, ~~located farthest from the laminar polymer PTC element (12) (the first layer having a laser beam absorption of b% (b > a))~~ and the laminar polymer PTC

element (12). First metal layer (18) is located farthest from the laminar polymer PTC element (12) and has a laser beam absorption of b%, where $b > a$.